

**AMENDMENTS TO THE CLAIMS:**

**Please add new claims 32 and 33 as follows:**

1. (Previously Presented) A method of patterning a magnetic thin film, comprising:  
transforming a portion of the magnetic thin film to be non-magnetic and electrically insulating using a chemical transformation, said chemical transformation comprises using a reactive plasma comprising a combination of a fluorine-based gas and a bromide-containing gas,

wherein said portion of said magnetic thin film comprises NiFe and said transforming comprises transforming said NiFe to a fluorine-containing film, and  
wherein said fluorine-containing film is electrically insulating.

2. (Previously Presented) The method of claim 1, further comprising:  
providing a mask over said portion of the magnetic thin film to be preserved using photolithography.

3-4. (Canceled)

5. (Previously Presented) The method of claim 1, wherein said fluorine-based gas comprises any of NF<sub>3</sub>, CF<sub>4</sub>, SF<sub>6</sub>, and CHF<sub>3</sub>.

6. (Previously Presented) The method of claim 1, wherein a pressure used in said transforming is within a range of about 10 mT to about 30 mT.

7-10. (Canceled)

11. (Original) The method of claim 2, wherein said mask comprises a photoresist.
12. (Original) The method of claim 2, wherein said mask comprises a hard mask patterned layer comprising one of diamond-like carbon (DLC), TiN, and TaN.
13. (Canceled)
14. (Original) The method of claim 1, wherein said using said chemical transformation is performed at room temperature.
15. (Previously Presented) The method of claim 1, wherein said reactive plasma includes a fluorocarbon.
16. (Canceled)
17. (Previously Presented) The method of claim 1, wherein said reactive plasma includes sulfur hexafluoride.
18. (Canceled)

19. (Previously Presented) The method of claim 1, wherein a pressure is selectively employed for said plasma sputtering such that the magnetic thin film material is substantially free of erosion.

20. (Previously Presented) The method of claim 2, further comprising:  
forming an insulating layer over the converted portion of said magnetic thin film and said mask; and  
etching said insulating layer and said mask to planarize an upper level of the mask and the insulating layer.

21. (Original) The method of claim 20, further comprising:  
selectively etching said mask; and  
forming a conductive material over the insulating layer and an area where the mask was selectively etched.

22. (Previously Presented) The method of claim 2, wherein said mask comprises an insulating hard mask, said method further comprising:  
after said converting, selectively etching said insulating hard mask to remove said insulating hard mask.

23. (Original) The method of claim 22, further comprising:  
forming a conductive material over an area where the insulating hard mask was etched.

Serial No. 10/680,260 5  
Docket No. YOR920030013US1  
(YOR.427)

24. (Canceled)

25. (Previously Presented) The method of claim 1, wherein said magnetic thin film includes a magnetic tunnel junction (MTJ), and  
wherein after said converting said portion, edges of the magnetic tunnel junction have no exposure to oxygen.

26. (Original) The method of claim 25, wherein an edge smoothness of the MTJ is determined by a line edge roughness of the mask.

27-31. (Canceled)

32. (New) The method of claim 1, wherein the reactive plasma includes 5% to 10% bromide.

33. (New) The method of claim 1, wherein a pressure used in said transforming is substantially 20 mT.